

REMARKS:

The specification has been amended to correct a minor grammatical error, and non-elected claims 10-14 have been canceled. Reconsideration of this application in view of these amendments and the following remarks is respectfully requested.

The Applicants hereby confirm their provisional election of Group I claims 1-9 for further prosecution in this application. Non-elected claims 10-14 are being canceled, but without prejudice to Applicants' right to pursue those claims in continuing applications.

Turning to the substantive rejections in the case, the Examiner has rejected claims 1-9 of the application under 35 U.S.C. §102 on reference to published European application EP 0450897 A2 to Harada et al. (Harada). Harada was cited to show a method of making a metallic monolith with organic binders and a heat treatment under an oxidizing and a reducing atmosphere, with copper metal powder also being present. This rejection is respectfully traversed for the following reasons.

Among the problems of prior art honeycombs are limited catalyst compatibility, inadequate thermal conductivity, a limited porosity range, and elastic properties that limit substrate physical durability. The Applicants attribute at least some of these problems to residual carbon other impurities in the products (page 3, lines 20-27 of the specification).

To overcome these problems, the Applicants require a two-stage heat treatment of the formed honeycombs to completely remove impurities such as carbon. That treatment essentially includes a preliminary heat treatment in an oxidizing atmosphere, and a secondary treatment in a reducing atmosphere (page 5, lines 4-18 of the specification).

Harada fails to teach or suggest such a treatment. Harada's principal objective is to provide a heat-resistant, corrosion-resistant, and oxidation-resistant metallic honeycomb. For that purpose thermal conductivity is irrelevant.

To provide these essential properties Harada expressly requires that both binder removal and sintering of the body be carried out in a non-oxidizing atmosphere (page 2, lines 10-15 and page 5, lines 52-55 of the reference). This procedure is exactly opposite that required by the Applicants' claims.

The Examiner points to the disclosure of copper at page 5, lines 31-32 of the reference. That disclosure is to the use of a minor optional copper addition to a honeycomb composition formed predominantly (at least 90% by weight) of Fe powder Cr power, and Al powder. Clearly the use of this minor copper constituent in the Harada process is insufficient to teach or suggest the Applicants' process for making copper and copper alloy honeycombs.

For the above reasons the Applicants respectfully submit that none of claims 1-9 of the application are fully anticipated by Harada, and accordingly reconsideration and withdrawal of the rejection of those claims under 35 U.S.C. §102(b) are respectfully requested.

The Examiner next rejected claims 1 and 3 of the application under 35 U.S.C. §102(e) as anticipated by published World patent application WO 01/16049 A1 (Beall). Beall was cited to show the manufacture of a metallic catalyst substrate with aluminum metal powder and organic binders and extrusion aides. This rejection is also respectfully traversed, for the following reasons.

The Beall disclosure is exclusively concerned with the manufacture of cordierite (crystalline magnesium aluminosilicate) ceramic honeycombs from powder batches of metal oxides. Thus the powder used to form the honeycomb batches is alumina rather than aluminum, and no discussion whatever of the manufacture of metallic honeycombs is provided.

The observation that Beall utilizes organic binders and extrusion aides in the forming of these honeycombs, while correct, is therefore not sufficient to anticipate the subject matter of the Applicants' claims. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 3 under 35 U.S.C. §102(e) as anticipated by Beall are respectfully requested.

Finally, the Examiner rejected claims 2 and 4-9 of the application under 35 U.S.C. §103 as unpatentable over Beall et al. taken with Harada et al. Beall was cited to show the use of aluminum metal powder, and Harada to show copper metal powder.

Reconsideration and withdrawal of this rejection are respectfully requested for the reasons that Beall fails to teach or suggest using an aluminum metal powder, and for the further reason that combining the references in the manner proposed would not be obvious. Beall is exclusively concerned with the manufacture of

cordierite honeycombs, and for that purpose requires the use of specific alumina starting compounds to form the cordierite (magnesium aluminosilicate) crystals.

To substitute copper for the alumina batch components of Beall would require that Beall's express requirements for his alumina batch materials be disregarded. Clearly to disregard the express teachings of Beall in order to combine the references in the manner proposed would not be an obvious expedient. For this reason the Applicants respectfully submit that the subject matter of rejected claims 2 and 4-9 is not suggested by the combination of Beall and Harada, but rather is subject matter which is clearly patentable thereover.

For all of the above reasons, the Applicants respectfully submit that the remaining claims of this application as amended are patentable over the art of record in this case, and are in condition for allowance. Accordingly, reconsideration of this application and allowance of all of the remaining claims are courteously solicited.

Respectfully submitted,



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